

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

A474171131

FACILITY: MICHIGAN SEAMLESS TUBE, LLC		SRN / ID: A4741
LOCATION: 400 MC MUNN ST, SOUTH LYON		DISTRICT: Warren
CITY: SOUTH LYON		COUNTY: OAKLAND
CONTACT: Ray Schoonover , Safety Manager		ACTIVITY DATE: 03/19/2024
STAFF: Sebastian Kallumkal	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Inspection to verify compliance with PTI No. 599-96C and to conduct odor observations for Complaint No. C-24-00793.		
RESOLVED COMPLAINTS: C-24-00793		

On March 19, 2024, I, Sebastian Kallumkal, Michigan Department of Environment, Great Lakes and Energy (EGLE), Air Quality Division (AQD) staff, conducted an inspection at Michigan Seamless Tube, LLC, (SRN: A4741) located at 400 McMunn Street, South Lyon MI. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; EGLE-AQD Administrative Rules; and the conditions of Permit-To-Install (PTI) No. 599-96C and to conduct odor observations for the compliant number: C-24-00793 received on March 5, 2024.

Prior to visiting the facility, at about 11:10 AM, I conducted odor observations along McMunn Street, Ada Street and Hagadorn street with windows of my vehicle open. I did not observe any objectionable odor in this route.

Then, I arrived at the facility parking lot at about 11:15 AM. I visited the office building and inquired an employee if the facility contact (Tom Sleder, Plant Manager) was available. She told me that he was in the plant and not available at that time. I informed her that EGLE-AQD received an odor complaint related to this facility's operations. Therefore, I will conduct odor observations outside the facility, and after that I will conduct an inspection of the facility. Also, I informed her that my car would be parked in their parking lot.

Next, I walked along McMunn Street, Ada Street and Hagadorn street. I visited complainant's home, and knocked at the door, but no one answered. So, I left my business card with the date/time of the visit and findings from the odor observations. I walked back to the facility. At this time, Ray Schoonover, EHS Manager, MST, greeted me on the McMunn Street and accompanied me to the office building.

In conference room, I also met Tom Sleder, Plant Manager and Tom Petrowski, Maintenance Supervisor. During the pre-inspection meeting, we discussed facility's operations and permit requirements. MST has about 170 employees and operates 24x7 all year long.

Tom told me that Boiler (#608) has not been operated for a couple of years. Boiler #609 is currently operating. EUWALKINGBEAM furnace has not been used for many years. The Rotary furnace and EUBOILER609 has separate meters to record natural gas fuel usage. They report emissions for these two processes. MST has four annealing furnaces. Steam from the boiler heats the tanks in the pickle lines which are used to remove scales and lubricates (Stearate) the tubes.

The facility has not been using the atmospheric generators for about 3 years. They are using nitrogen (inert) atmosphere to reduce the oxidation during heating. The

facility is not currently using the SCANACON system which was employed in the removal for iron from the pickling solution.

A lacquer-based anti-corrosion coating (different colors) is used in the UV coating of the tubes. The coating is applied (flow coating, not atomized) on to the tubes and is cured using UV lighting. Next, the tubes are stamped using stencil coating. The facility stores sulfuric acid in two aboveground bulk storage tanks.

Next, Tom and Ray accompanied me for an inspection of the facility. We walked along the Picke Line 5 which sulfuric acid (12%), water rinse, caustic and phosphoric acid to clean the tubes. Next, we visited the annealing furnaces, the other pickling lines, draw bench, straightener, and the finishing line where the tubes are cut to length for shipping.

During the post-inspection meeting, we discussed the records to be submitted and gave until March 29th to submit the records. I informed them that if natural gas usage for the other heating units is more than 50,000,000 cubic feet per year, they need to report these emissions annually along with other emissions reporting. I requested the SDS for the UV coating and the stencil coating. I received the records and SDS, via email, on March 26, 2024.

After I left the facility, I conducted further drive by odor observations with windows open along McMunn, Ada, S. Hagadorn Street and back to McMunn and to Liberty Street. I left the area around 1:40 PM. I did not observe any objectionable odor along these routes.

I contacted the complainant via office phone three times on March 21, 2024. First time, identified myself, the complainant hanged up the phone/disconnected, second time did not pick up, third time, again identified myself, but the complaint asked me to not to call about this anymore.

PROCESS DESCRIPTION

Michigan Seamless manufactures steel tubing from round steel bars. Raw material is in the form of solid round steel billets (in a variety of over 100 grades of steel). The facility used to have two heating furnaces: walking beam furnace (EUWALKINGBEAM) where steel billets used to be pre-heated and a rotary hearth furnace (EUROTARYHEART) where the billets are then heated to 2300 °F. Walking beam furnace is no longer used. Steel billets just pass through it now. In the rotary hearth furnace, the steel billets are placed on a turntable which turns around the stationary hearth surrounding the turntable. Each billet is then indented in the exact center before entering the piercing mill where the billets are fed between heavy rollers that drive it over a piercing point (bullet shaped) to produce a tube shell. While still hot, the pierced tube is reduced (in diameter) in a stretch reducing mill, where the tubes pass through a series of rollers with different speeds. This produces tube shells of superior concentricity. After the steel billets are pierced, the bullet shaped piercing point is automatically dropped in a container.

After being cooled down (to approximately 200 °F) from the furnaces, the tubes are moved to the acid pickle houses to remove the scale (iron oxide) from the tubes. From here, the tubing goes to an inspection area for random sampling. After inspection, the tubing is moved back to the pickling houses for zinc phosphate and

sodium stearate drawing lubricant application. The tubes are then cold worked in the draw bench to further reduce the tubes to the desired size and thickness. In the cold draw bench, the tubes are pulled mechanically over a stationary die and a mandrel (a mandrel is a tool component that grips or clamps materials to be machined), reducing the tubes to the desired size and thickness within very close tolerance.

After cold working, the tubes go to the annealing furnace where variations of temperature, time and the number of cycles produce a wide range of hardness and tensile strength to meet the standards and customer requirements. The annealed tubes are cooled and sent back to the pickling houses for removal of any remaining scale. Typically, tubes are processed in the pickling tanks several times.

The tubes are then sent back to the cold draw bench to be cold drawn to its final size. Finally, the tubes are straightened, cut to length, inspected, and checked by eddy current and demagnetized.

FURNACES and BOILERS

The rotary hearth furnace was installed in 1945 and modified in 2006 and 2012. In 2012, the furnace was modified to use oxyfuel instead of air which helped to reduce the fuel usage due to the reduced energy consumption because of the absence of nitrogen component in the oxidant. The walking beam furnace (not used anymore) was installed in 1979. In 2006. This furnace is no longer being used.

Natural gas-fired Boiler 608, rated at 20.95 MMBtu/hr, (EUBOILER608, West Boiler) was installed in the 1960s; therefore, this boiler is grandfathered and also not subject to the New Source Performance Standard (NSPS), 40 CFR 60, Subpart Dc-Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This boiler is currently not being used.

Natural gas fired Boiler 609 (EUBOILER609, East Boiler), rated at 24.49 MMBtu/hr was installed in 2012. Currently this is the only boiler supplying steam to the pickle houses. This boiler is subject to NSPS Subpart Dc. (Applicability=Each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h)). Boilers are inspected yearly by an outside contractor to tune the burners.

Facility used to operate three DX atmospheric generators that produce rich exothermic gas used as atmospheric gas in the furnaces. The atmospheric gases are deprived of oxygen therefore preventing oxidation in the furnace. MST is not using these atmospheric generators currently; instead, they are using nitrogen filled atmosphere in the furnace.

There are six annealing furnaces (temperature range from 900 to 1800 °F), identified as No. 9, No. 10, No 665, No. 673, no. 980, and No. 981. Annealing Furnace 981 is the new recuperated (combustion air is preheated with recuperated air from exhaust) annealing furnace that was installed in 2014 (rated at 9.47 MM/BTU/hr). The furnaces are exempt under Rule 282(2)(a)(i). Out of the 6 furnaces, only four (No.10, No. 673, No. 980, and No. 981) are currently used. No. 981 is used 85% of the time.

There are several other small boilers and heaters located throughout the facility. All are under 10 MM BTU/hr, and therefore exempt under Rule 282(2)(b)

R 336.1282 Permit to install exemptions; furnaces, ovens, and heaters.

Rule 282. (1) This rule does not apply if prohibited by R 336.1278 and unless the requirements of R 336.1278a have been met.

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

(i).

(a) Any of the following processes or process equipment which are electrically heated or which fire sweet gas fuel or no. 1 or no. 2 fuel oil at a maximum total heat input rate of not more than 10,000,000 Btu per hour:

(i) Furnaces for heat treating or forging glass or metals, the use of that does not involve ammonia, molten materials, oil-coated parts, or oil quenching.

(b) Fuel-burning equipment which is used for space heating, service water heating, electric power generation, oil and gas production or processing, or indirect heating and which burns only the following fuels:

(i) Sweet natural gas, synthetic natural gas, liquefied petroleum gas, or a combination thereof and the equipment has a rated heat input capacity of not more than 50,000,000 Btu per hour.

PICKLE HOUSES

There are 5 pickle houses – No. 1, No. 2, No. 3, No. 4, and No 5 utilizing sulfuric acid and phosphoric acid to remove iron oxide scale from the tubes. Pickle House No. 5, installed in 2012, has a scrubber control. This is spray (water) scrubber with a honeycomb type of structure to allow enough residence time for the gas collection. A scrubber was installed because the location of the pickling tanks could not provide for adequate ventilation. Scrubber fluid goes the scrubber once-through. From the scrubber, fluid goes to the rinse tanks in the pickling operation. Scrubber fluid is not recirculated in the scrubber. Scrubber fluid is injected before the forced draft fan to scrubber. Water flow to scrubber is monitored. The scrubber is assumed to have 99% efficiency. The rest of the pickle houses are uncontrolled. Pickle House No. 2 used to have a scrubber control but was removed.

Tubes from the rotary furnace go to Pickle House No. 5. Tubes from the furnace typically will have more scale. Pickle House Nos. 2 and 3 are used for applying zinc phosphate and sodium stearate drawing lubricant (intermediate treatment). Pickle House Nos. 1 and 4 is used for finish pickling. Pickle Houses 1 and 4 use rust inhibitor, caustic and sulfuric acid and water rinse. As mentioned above, tubes typically go through several pickling tanks during the manufacturing process.

Sulfuric acid concentration in the pickling tanks is kept at 12%. Only the amount of time is varied - more scale, longer immersion time. The facility has two Aboveground storage tanks for the acid: one 2500 gallons and one 10,000 gallons, storage capacities. These tanks are exempt from permit to install requirements pursuant to Rule 284(2)(h). The SDS shows that sulfuric acid content is 93% by weight.

R 336.1284 Permit to install exemptions; containers.

Rule 284. (1) This rule does not apply if prohibited by R 336.1278 and unless the requirements of R 336.1278a have been met.

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to containers, reservoirs, or tanks used exclusively for any of the following:

(h) Storage and water dilution of aqueous solutions of inorganic salts, bases, and the following acids:

- (i) Sulfuric acid that is not more than 99% by weight.
- (ii) Phosphoric acid that is not more than 99% by weight.
- (iii) Nitric acid that is not more than 20% by weight.
- (iv) Hydrochloric acid that is not more than 11% by weight.

AUXILLIARY PROCESS EQUIPMENT

Facility had installed a SCANACON system to remove the iron from the pickling solution. The facility is not using this system anymore.

Plant discharge goes to the wastewater treatment plant. Lime slurry is added to the wastewater influent to neutralize the acid. The neutralized wastewater is bottom fed to 2 clarifiers. Liquid overflow goes to the sewer, bottoms go to thickener tanks. Sludge from thickener tanks goes to a filter press. Cake is disposed of as nonhazardous waste. Facility recently upgraded the water treatment plant.

The facility applies a blue UV coating (UV Curable Blue DTM Coating RAL 5017) to the tubes, using a flow coater. This coating has neither VOC nor carcinogens. The SDS shows that the Solids content is 99.99% w/w. The facility is keeping the records of these coatings and VOC emissions.

Facility uses solvent based inks (example: 5157E-Printing Ink Black Marker) to stamp the tubes. Usage of solvent-based ink is very minimal. This process appears to be exempt from permit to install (Rule 201) requirements pursuant to Rule 290. The SDS shows that the product contains about 80-90% Methyl Ethyl Ketone, 1-5% Isopropyl alcohol, with a VOC content of 86.89%. The facility is keeping records of coating usage and monthly VOC emissions. For 2022, the facility ordered 88.5 liters of coating and the total estimated emissions were 169.77 pounds. Similarly, for 2023, the facility ordered 105.75 liters of coating and the total estimated emissions were 202.87 pounds. For January-February 2024, the facility ordered 12 liters of coating and the total estimated emissions were 10.01 pounds.

R 336.1290 Permit to install exemptions; emission units with limited emissions.

Rule 290. (1) This rule does not apply if prohibited by R 336.1278 and unless the requirements of R 336.1278a have been met.

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the emission units listed in subdivision (a) of this subrule, if the conditions listed in subdivisions (b), (c), (d), and (e) of this subrule are met. Notwithstanding the definition in R 336.1121(a), for the purpose of this rule, uncontrolled emissions are the emissions from an emission unit based on actual operation, not taking into account any emission control equipment. Controlled emissions are the emissions from an emission unit based on actual operation, taking into account the control equipment.

(a) An emission unit which meets any of the following criteria:

(i) Any emission unit that emits only noncarcinogenic volatile organic compounds or noncarcinogenic materials that are listed in R 336.1122(f) as not contributing appreciably to the formation of ozone, if the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively.

Permit No. 599-96C, FG-PICKLING

Special Condition (SC) I.1 limits the sulfuric acid emissions from all 5 pickling houses (FGPICKLING) to 6.1 tons per year based on a 12-month rolling period. The facility is keeping steel processed and sulfuric acid emissions for each pickling house. The 12-month rolling period sulfuric acid emissions for 2022 were 1.47 tons, for 2023 were 1.12 tons and as of Feb 2024, it was 1.00 tons.

SC I.2 limits the hourly sulfuric acid emission from Pickle House No. 5 to 0.01 lb/hr. The 2022-Feb 2024 records show that the hourly emissions range from 0.003 to 0.001 lb. Emissions calculations appears to be done in accordance with Appendix A of the permit.

SC III.1. The scrubber for Pickle House No. 5 is installed and operating properly. PTI 599-96C does not specify an acid [wet] scrubber minimum scrubber liquid (water) flow rate or a pressure differential range across the acid scrubber.

Flow rate of the scrubber fluid is monitored. Periodic maintenance is conducted on the scrubber.

SC V. There is no testing requirement for FGPICKLING. However, a stack test was conducted on July 26-27, 2006, for Pickle house Nos. 1, 2, 3, and 4.

SC VI.1. Required emissions calculations are done.

SC VI.2. Emissions calculations for the pickle houses are done.

SC VIII. Stack dimensions were not verified but appear to be as specified in permit.

Permit No. 599-96C, FGFACILITY

Special Condition (SC) I.1. Limits facility wide NOx emissions to 89 tons per year based on a rolling 12-month period. Facility submitted gas usage and used an emission factor of 0.98 pounds NOx/MMBtu (100 lb/MMcf). For 2022, Nox emissions were 17.3 tons and for 2023, the Nox emissions were 15.5 tons and as of February 2024, the 12-month rolling period Nox emissions were 15.16 tons. Emissions calculations appears to be done in accordance with Appendix A of the permit.

SC II.1. Facility burns only sweet natural gas in all equipment included in FGFACILITY.

Special Cond IV. EUBOILER 608 and EUBOILER 609 are maintained according to manufacturer’s recommendations.

SC VI.1. Facility completes all required calculations in a format acceptable to the AQD.

SC VI.2. Facility completes required monthly and 12-month rolling NOx emissions calculations. 12-month rolling NOx emissions are calculated monthly.

SC VIII. Stack dimensions were not verified but appear to be as specified in permit.

NOx emissions are calculated based on total natural gas usage billed to the facility. EF used is 100 lbs/MMCF. The facility tracks individual natural gas usage, via individual gas meters, for the two boilers and furnaces.

Recommendations: Currently MST is reporting emissions separately for EU-BOILER608 (MAERS ID:EU01-608-BOILER; did not operate in 2022), EU-BOILER609 (MAERS ID: EU02-609-BOILER, operated in 2022), EUROTARYHEARTH (MAERS ID: EU08-ROT-FURN, operated in 2022) and EUWALKINGBEAM (MAERS ID EU09-WB-FURN, did not operate in 2022). The annual emission reporting requires that the facility report emissions from Rule 282(2)(b) sources if the annual throughput is greater than 50 million cubic feet. If the usage is more than this threshold, MST shall start reporting these emissions starting for the year 2024.

Table 11-2: Rule 201 Exempt Emission Units that must be reported

RULE 201 EXEMPTION	REPORTING REQUIREMENT
Rule 281(2)(h)	Only report emissions of applicable criteria pollutants for cold cleaners having a total annual throughput greater than 1,000 gallons of cleaner. (aggregate of all cold cleaners combined) <i>Total annual throughput of cleaner = (cleaner used) - (cleaner reclaimed as waste)</i>
Rule 282(2)(b)	Only report emissions of applicable criteria pollutants from fuel burning equipment that have a total annual throughput equal to or greater than any of the following: 50,000,000 cubic feet of gases in Rule 282(2)(b)(i), 400,000 gallons of fuel oil in Rule 282(2)(b)(ii), and 1,000 tons of wood in Rule 282(2)(b)(iii).

Conclusion: MST appears to be in compliance with the requirements of PTI No. 599-96C. During the odor observations, I did not observe any objectionable odor with intensity, frequency or duration which may constitute a violation of Michigan Administrative Rule 901 (R336.1901). Further odor observations would be conducted, should the AQD receive more complaints. This complaint (NO. C-24-00793) is considered “RESOLVED” at this time.

NAME Sebastianykallemkal DATE 04-09-2024 SUPERVISOR Joyce